Clinical Profile and Outcome of Neonates Admitted to Neonatal Intensive Care Unit of NGMC

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ABSTRACT

Background: Neonatal period is a period from birth to under 28 days of life. The common causes of mortality and morbidity in our region are preventable, among which neonatal sepsis is the commonest one. Most of the deaths occur within 7 days of life. **Objectives:** To study the clinical profile, pattern of diseases, causes of morbidity and mortality amongst newborns. **Materials and methods:** A hospital based descriptive study was done among total 967 newborns including both inborn and out born admitted in NICU, NGMC from January 2016 to December 2016. Age, sex, gestational age, diagnosis at admission, outcome of admitted newborns were the main variables under study. Data was entered in Excel and analyzed using SPSS 20th version. Data were presented through pie, bar graph and table with frequency and percentage. **Results:** Male were predominant in the study (65%). One third of the admitted newborns were preterms. Half of the admitted newborns were admitted on their first day of life. Neonatal sepsis was the most common cause of admission. Deaths occured in 7.4%of total babies. Seventy-six percent got improved after treatment. Only 2.8% were referred to higher center. **Conclusions:** Most of the neonates got admitted in first day of life with commonest cause being neonatal sepsis. Recovery rate was satisfactory. To reduce the mortality and morbidity of neonates, we need to increase awareness level in general population and proper aseptic practices in medical practitioners.

Key words: *Neonate, Neonatal Intensive Care Unit, Sepsis*

INTRODUCTION

Neonatal period defined as the period from birth to under 4 weeks (≤ 28 days) of age for an infant who is completing many of the physiological adjustments required for extra uterine existence. It is the most crucial period of life due to a variety of illnesses and most can be prevented [1]. Across the globe, approximately 130 million babies are born every year out of which 4 million die within 28 days of life. Seventy-five (75%) percent newborn deaths occur within first 7 days of life and 50% occurs within 24 hours of life [2]. The causes behind the neonatal morbidity and mortality are different in developed and developing countries [3,4,5]. Mostly non preventable causes are common in developed countries i.e. congenital anomalies and prematurity. On the other hand preventable causes are present in developing countries such as infections, birth asphyxia, and prematurity[6].

Neonatal mortality is very common (99%) in lower and middle income countries and more than 50% death occurs at home[7]. The neonatal mortality of Nepal is 24 per 1000 live births in the 1st week life and 3 per 100 live births during remaining 1st month[8]. Overall neonatal mortality is 21 per 1000 live births[9]. Most of the neonatal morbidity and mortality can be prevented by timely effective and appropriate perinatal and obstetric care.

MATERIALS AND METHOD

This is a hospital based cross-sectional descriptive study done at department of Pediatrics, Nepalgunj medical college, Nepalgunj from January 2016 to December 2016. A total number of 967 newborns including both in-born and out- born were admitted during the study period in our NICU. NICU of Nepalgunj medical college includes the facilities of mechanical ventilators, peripherally inserted canula, bubble CPAP, arterial blood gas monitoring, central oxygen and suction facilities, multichannel patient monitor, exchange transfusion and phototherapy. Data of all babies admitted were taken and analyzed. Variables were age at admission, gestational age, birth weight, gender, presenting complaints, complications, procedure done, final diagnosis, outcome whether the newborn was improved and discharged after completion of treatment, discharged on request, left against medical advice, reffered or expired. Those who refused to give consent were excluded. Data were entered in excel and analyzed in SPSS 20th version.

RESULTS

Total number of newborns was 967 during the study period. Outborns were 39%(377) whereas in born were 61%(590). Among the outborns, most of the babies were admitted through emergency or outpatient department. Sixty five percent (629) were male newborns and 35%(338) were female.

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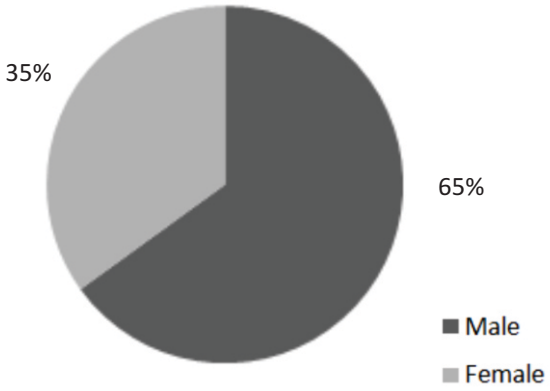

Figure 1: Sex distribution of newborns

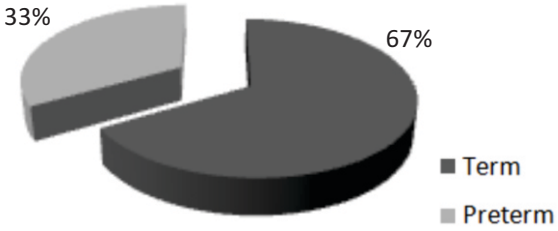

Figure 2: Distribution of newborns according to gestational age

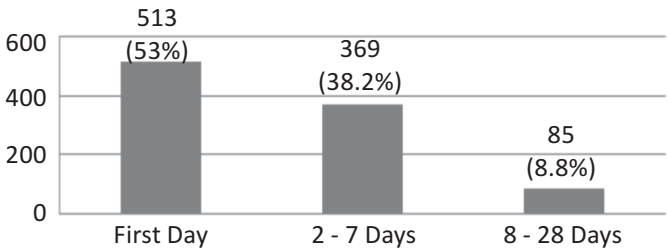

Figure 3: Admission pattern according to age at admission

Diagnosis	Number	Percentage(%)
Neonatal sepsis	368	38
Birth asphyxia	205	21.2
Low birth weight	174	18
Meconium aspiration syndrome	68	7
Neonatal jaundice	58	6
Transient tachyponea of newborn	48	5
Others	27	2.8
Congenital anamolies	19	2

Table I: Diagnosis of Neonatal Conditions for Admission

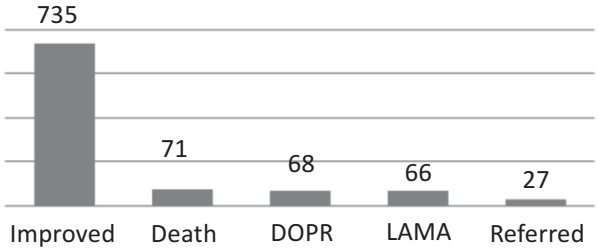

Figure 4: Outcome of newborns admitted to NICU

Newborns admitted in first day of life were 53%(513), similarly 38.2%(369) in second to seven days and 8.8%(85) were admitted up to 28 days.Neonatal sepsis was the most commonly present disease (38%) that indicated admission in NICU, followed by birth asphyxia, low birth weight, meconium aspiration syndrome, neonatal jaundice, and transient tachypnoea of newborn, congenital anomalies and others.

Seventy-six percent of neonates improved after the treatment, followed by 7.4% deaths, 7% were discharge on request, 6.8% left against medical advice (LAMA) and 2.8% were referred to higher center.

DISCUSSION

Our study showed that a total of 967 newborns were admitted in NICU of NGMC during the study period. NGMC is a tertiary care and teaching hospital in mid-western region of Nepal.

Two third newborns were males and rest were females which are in accordance to other studies as well[1,10,11]. This is due to the fact that our society is male predominant so male babies are given more priority than female for treatment as well. Present study shows 53% admissions in first 24 hours of life which is supported by other studies also with a first 24 hours of life admission ranging from 33.61 to 44.47%[1,412]. The reason for high admission within first 24 hours of life is due to the fact that this period being the most vulnerable period of life. Neonatal sepsis was the most common cause that indicated admission in our NICU followed by birth asphyxia and low birth weight. Rahim et al[1] also reported similar type of NICU admission pattern whereas another study which was done in Pakistan by Butt et al13 found birth asphyxia to be the commonest cause of NICU admission followed by neonatal jaundice, prematurity and sepsis. Similarly one more study done in Nepal[14] also highlights birth asphyxia to be one of the major cause of NICU admission whereas another study which was also carried out in Nepal[15] found neonatal jaundice to be the major cause of NICU admission. Cases referred to higher center mostly due to surgical causes like intestinal obstruction, duodenal atresia, tracheo-oesophegal fistula. Present study revealed 7.4% deaths of newborn which is less, compared to Study of Pakistan (30.9%)[16] and South Africa (63%)[17] and higher than study of Dharan (4.7%)[15].

In our study 323(33%) of newborns were preterm which was higher as compared to several other studies[14,15]. This may be due to lack of awareness, early marriages, poverty and illiteracy in this part of the country.

CONCLUSION

Neonatal sepsis is the predominant cause of admission in the neonatal intensive care unit followed by birth asphyxia and low birth weight including preterms. Neonatal sepsis is the predominant cause of morbidity and mortality in our part of the world. Hand washing, wearing mask, cap, practicing all the aseptic measures among the health staffs including doctors can reduce the mortality and morbidity among newborn admitted in our NICU. Morever timely arrival of patient to health facility is also important for recovery which indicates a good awareness program by the government in order to improve the knowledge regarding prevention and early identification of health problems of neonates.

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